



OFFICE OF

**BUILDING** TECHNOLOGY,

STATE AND COMMUNITY PROGRAMS

# The Scope of the 2000 International Energy Conservation Code

U.S. Department of Energy  
Office of Codes and Standards

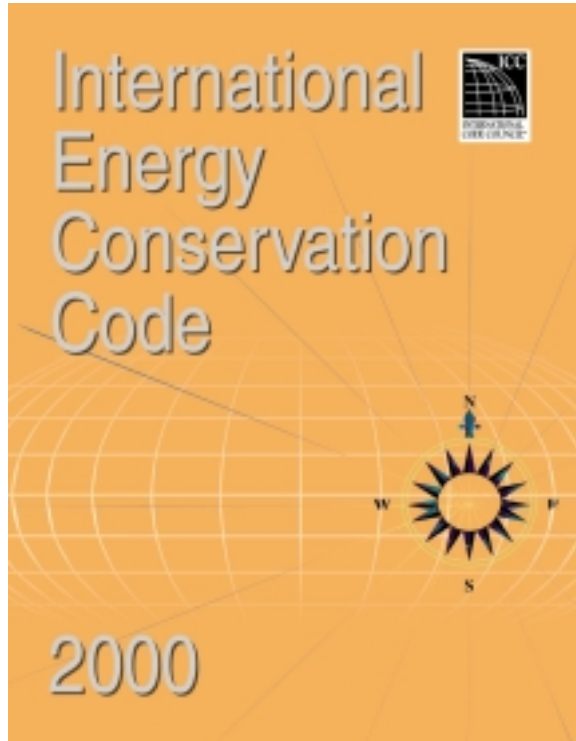
Produced by the Pacific Northwest National Laboratory

# Course Outline

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- Introduction to IECC
- Residential Provisions
  - Chapter 4
  - Chapter 5
  - Chapter 6
- Commercial Provisions
  - Chapter 7
  - Chapter 8

# What is the IECC?



## **A REQUIRED MINIMUM LEVEL OF ENERGY EFFICIENCY IN NEW CONSTRUCTION**

- Enables effective use of energy in new building construction
- Regulates the design and selection of the
  - building envelope
  - mechanical systems
  - electrical systems
  - service water heating systems

# Structure of the IECC

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- Chapter 1 Administrative & Enforcement
- Chapter 2 Definitions
- Chapter 3 Design Conditions
- Chapter 4 Residential - Systems Analysis
- Chapter 5 Residential - Component Performance
- Chapter 6 Simplified Prescriptive
- Chapter 7 ASHRAE 90.1-1989 Energy Code Reference
- Chapter 8 Design by Acceptable Practice for Commercial Buildings
- Chapter 9 Referenced Standards

# What is the 90.1 Code?

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- ASHRAE/IES 90.1-1989 in code language
- Standard of stringency established by EPA Act '92
- States required to update their nonresidential energy standards to be at least as stringent

# Structure of 90.1 Code (Relevant Sections)

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- Chapter 3 Design Conditions
- Chapter 4 Building Design Requirements
  - 401 Electrical Systems and Equipment
  - 402 Building Envelopes
  - 403 Building Mechanical Systems and Equipment
  - 404 Building Service Systems and Equipment
- Chapter 5 Reference Standards
- Appendix A - ACP Tables
- Appendices B and C (reserved)
- Appendix D - Duct Insulation R-values

# Application

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- When does the IECC apply?
  - Newly conditioned space
  - New construction in existing buildings
  - Alterations to existing spaces
  - Additions
  - Mixed use buildings
  - Change in occupancy

# Newly Conditioned Space

(Previously Unconditioned)  
(*Section 101.4*)

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- Envelope, mechanical and lighting systems must be brought into compliance
- Potential problem areas
  - Building envelope
  - Lighting system
- Recommendations
  - Demonstrate compliance for systems at the time of permit



# New Construction in Existing Buildings

## (Tenant Improvements)

### *(Section 101.4)*

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- New system(s) must comply
  - Envelope (should already comply)
  - Mechanical
  - Lighting

# Additions

*(Section 101.4.2)*

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- Construction of new conditioned space or the conditioning of previously unconditioned space
- Treat the envelope, lighting, and mechanical systems as if the addition were a new building

# Additions *(cont'd)*

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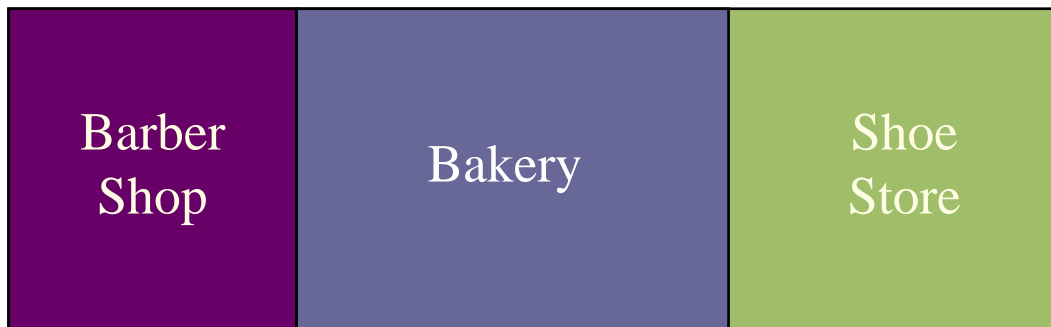
- Compliance options for additions
  - Treat as a stand-alone building
  - Bring entire building into compliance



# Mixed Use Buildings

## *(Section 101.4.3)*

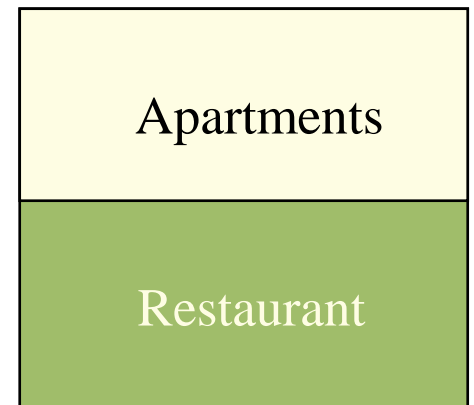
- Minor occupancy
  - <10% of floor area
  - Treat as major occupancy
- Different commercial occupancies
  - Treat building under the same compliance process as single occupancy building



# Mixed Use Buildings *(cont'd)*

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- Hotel/motel and commercial occupancies
  - Treat as Different Commercial Occupancies
- Mixed residential and commercial occupancies
  - Treat the residential occupancy under the applicable residential code
  - Treat the commercial occupancy under the commercial code

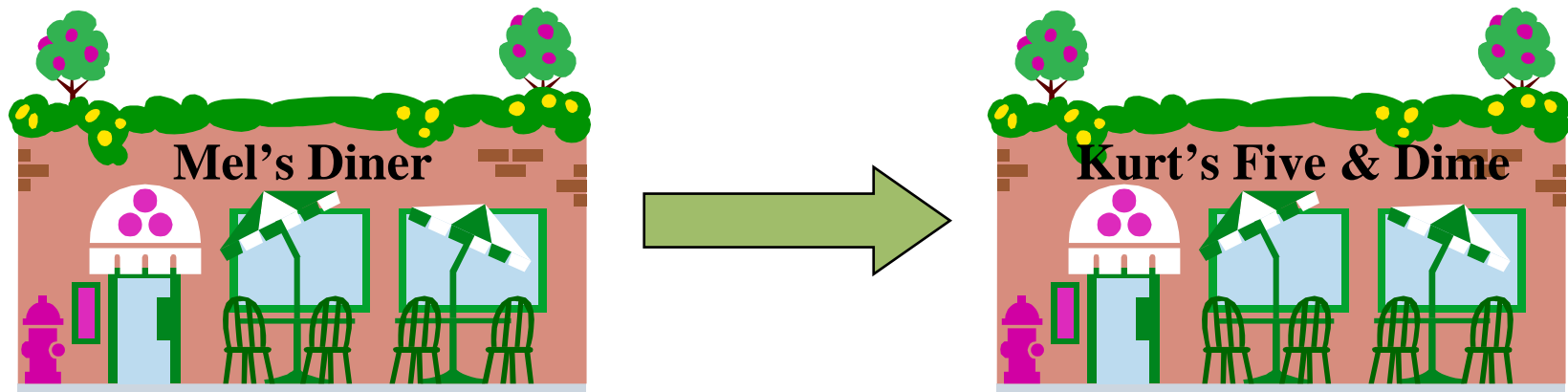


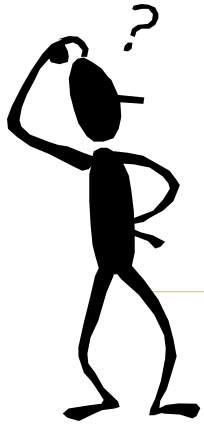
# Change in Occupancy

*(Section 101.4.2)*

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- No action is required if alterations are not made to the building systems





# Problem

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## Question

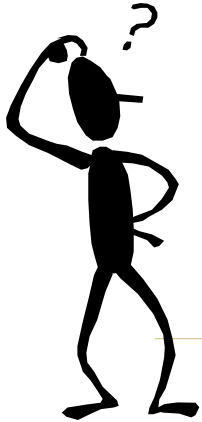
A building owner wants to rearrange some interior partitions and reposition the light fixtures in the affected rooms. Do any requirements exist for this alteration?

# Change In Occupancy

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- Alterations to Existing Spaces
- Applies to only portions of the systems being altered
- Applies if alteration increases energy use
- Alterations must meet the requirements applying to the altered component
- New systems in the alterations must comply

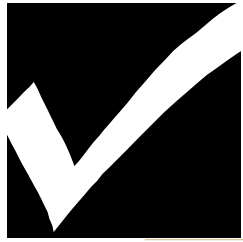




# Problem

## Question

A building owner wants to install a new window in an old building, which will increase the glazing area. Must the building comply with the code?



## Exceptions

*(Section 101.4.1)*

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- Very low energy use buildings  
( $<3.4$  Btu/h-ft<sup>2</sup> or 1 watt/ft<sup>2</sup>)
- Buildings (or portions of) that are neither heated nor cooled
- Buildings designated as historic  
*(Section 101.4.2.3)*